HELICOPTER FORCE-FEEL AND STABILITY AUGMENTATION SYSTEM WITH PARALLEL SERVO-ACTUATOR

Abstract of the Disclosure

A force-feel system is implemented by mechanically coupling a servo-actuator to and in parallel with a flight control system. The servo-actuator consists of an electric motor, a gearing device, and a clutch. A commanded cockpit-flight-controller position is achieved by pilot actuation of a trim-switch. The position of the cockpit-flight-controller is compared with the commanded position to form a first error which is processed by a shaping function to correlate the first error with a commanded force at the cockpit-flight-controller. The commanded force on the cockpit-flight-controller provides centering forces and improved control feel for the pilot. In an embodiment, the force-feel system is used as the basic element of stability augmentation system (SAS). The SAS provides a stabilization signal that is compared with the commanded position to form a second error signal. The first error is summed with the second error for processing by the shaping function.

PATENT

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